COAXIAL

Medium High Power Amplifier

ZHL-4240+
ZHL-4240X+

50Ω 600 to 4200 MHz

THE BIG DEAL

- Wideband, 600 to 4200 MHz
- High Gain, 39 dB Min.
- Excellent Gain Flatness, ±1.3 dB
- High IP3, +38 dBm typ.

Generic photo used for illustration purposes only

Model No.	ZHL-4240+	ZHL-4240X+▲
Case Style	U36	
Connectors	SMA	

+RoHS Compliant
The +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

APPLICATIONS

- Communication Systems
- Cellular
- Instrumentation
- Laboratory

PRODUCT OVERVIEW

Mini-Circuits' ZHL-4240+ is a medium-power connectorized amplifier supporting a wide range of applications from 600 to 4200 MHz, such as test instrumentation, SatCom, and mobile communications systems, including those operating in the new telecom Band 71 allocation (617 to 698 MHz). This model provides +31 dBm output power at saturation and extremely flat gain (39 ±1.3 dB) across its full bandwidth, making it ideal for systems where consistent performance across frequency is required. The amplifier operates on a +15V DC supply and comes housed in compact aluminum alloy case (7.00 x 3.25 x 2.13") with SMA connectors, built-in bracket for mounting, and an optional heat sink for efficient cooling.

KEY FEATURES

Feature	Advantages
Wideband, 600 to 4200 MHz	One amplifier supports a broad range of system and test lab applications. Extended bandwidth down to 600 MHz supports new telecom Band 71 allocation (617 to 698 MHz)
High Gain, 39 dB	Reduces the number of gain stages, lowering component count and overall system cost.
Excellent Gain Flatness, ±1.3 dB	Provides consistent performance across frequency, minimizing the need for external equalizing networks in wideband applications.
Medium Output Power, +31 dBm P3dB	Supports a wide range of power requirements.
High OIP3, +38 dBm	Provides highly linear performance with excellent sensitivity and two-tone spur-free dynamic range.

REV. B
ECO-017731
ZHL-4240+
MCL NY
230504

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ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	ZHL-4240+ ZHL-4240X+ ▲			Units
	Min.	Typ.	Max.	
Frequency Range	600	—	4200	MHz
Gain	39	42	47	dB
Gain Flatness	—	±1.3	±1.8	dB
Output Power at 1dB compression[1]	+28	+30	—	dBm
Output Power at 3dB compression[2]	+29	+31	—	dBm
Noise Figure	—	8.0	—	dB
Output third order intercept point	—	+38	—	dBm
Input VSWR	—	—	2.5	:1
Output VSWR	—	—	2.5	:1
DC Supply Voltage	—	+15	—	V
Supply Current	—	—	1.0	A

Open load is not recommended, potentially can cause damage.
With no load derate max. input power by 20 dB.
1. +27 dBm at 3700-4200 MHz
2. +28 dBm at 3700-4200 MHz

▲ Heat sink not included. Alternative heat sinking and heat removal must be provided by the user to limit maximum base-plate temperature to 65°C, in order to ensure proper performance. For reference, this requires thermal resistance of user's external heat sink to be 1.3°C/W max.

ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-20°C to +65°C
Storage Temperature	-55°C to +100°C
DC Voltage	+20V
Input RF Power (no damage)	-5 dBm

Permanent damage may occur if any of these limits are exceeded.

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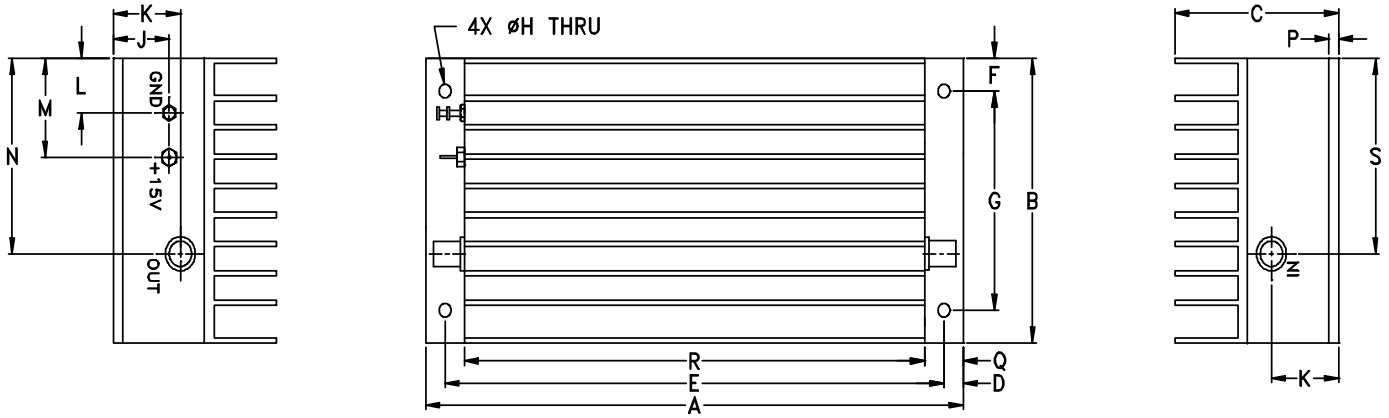
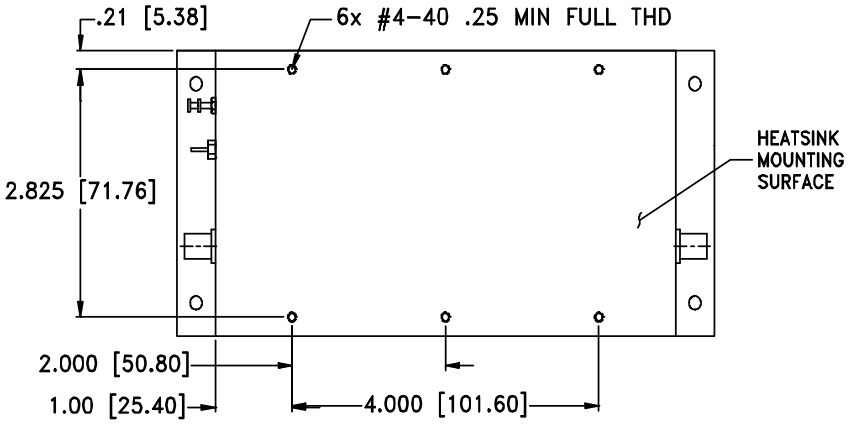
OUTLINE DRAWING FOR MODELS WITH HEATSINK



MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK



OUTLINE DIMENSIONS (Inch / mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	wt
7.00	3.25	2.13	.25	6.500	.38	2.500	.156	.73	.88	.63	1.13	2.23	.125	.50	6.00	2.23	grams
177.80	82.55	54.10	6.35	165.10	9.65	63.50	3.96	18.54	22.35	16.00	28.70	56.64	3.18	12.70	152.40	56.64	900

*600 grams without heatsink

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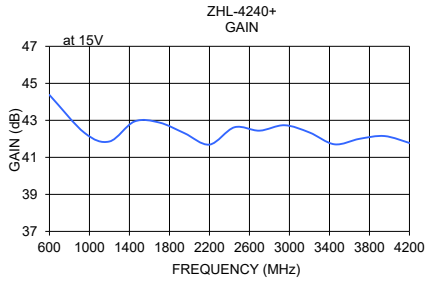
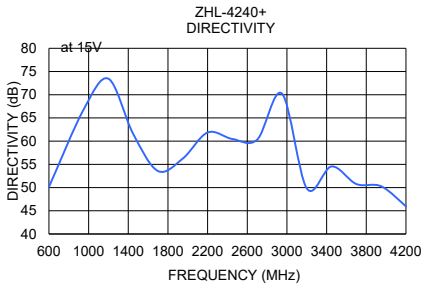
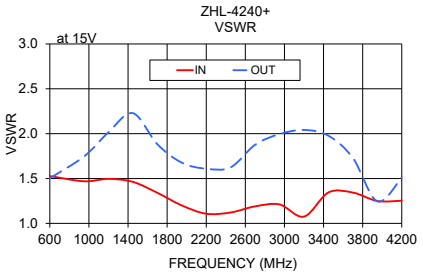
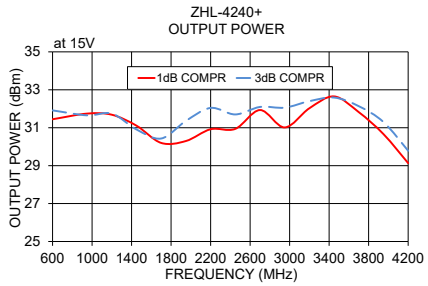
TYPICAL PERFORMANCE DATA / GRAPHS

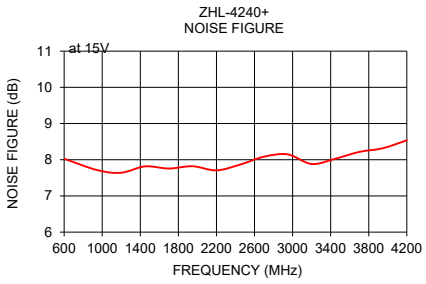
FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1)		POUT at 1 dB COMPR. (dBm)	POUT at 3 dB COMPR. (dBm)	NOISE FIGURE (dB)	OUTPUT IP3 (dBm)
	15V	15V	IN	OUT	15V	15V	15V	15V
600	44.37	50.13	1.53	1.50	31.45	31.91	8.03	48.11
950	42.33	66.82	1.47	1.75	31.74	31.65	7.71	46.30
1200	41.86	73.44	1.50	2.02	31.68	31.74	7.64	45.16
1450	42.94	61.55	1.46	2.23	31.11	30.91	7.82	41.23
1700	42.88	53.56	1.34	1.88	30.20	30.43	7.76	41.89
1950	42.31	56.25	1.20	1.68	30.30	31.36	7.82	49.01
2200	41.69	61.87	1.11	1.61	30.92	32.04	7.71	47.98
2450	42.63	60.47	1.12	1.62	30.94	31.70	7.87	44.99
2700	42.44	60.33	1.19	1.88	31.93	32.09	8.08	45.51
2950	42.74	70.24	1.21	2.00	31.01	32.06	8.15	53.12
3200	42.34	49.82	1.08	2.04	32.03	32.40	7.88	47.31
3450	41.71	54.55	1.34	1.98	32.65	32.59	8.03	47.97
3700	42.00	50.76	1.34	1.73	31.82	32.14	8.22	48.81
3950	42.15	50.28	1.25	1.24	30.66	31.30	8.32	45.68
4200	41.78	45.95	1.25	1.51	29.13	29.78	8.54	39.05
4200	41.78	45.95	1.25	1.51	29.13	29.78	8.54	39.05

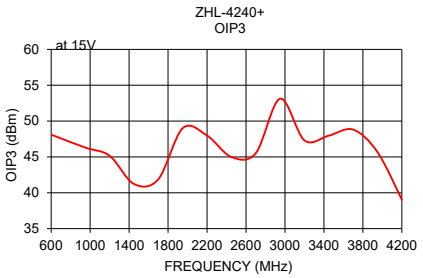












NOTES

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/terms/viewterm.html